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OPTIDRIVE

user's manual

www.lanzar.com

OptiE-15

15-Band Half/Full Octave Stereo Equalizer

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INTRODUCTION...

Congratulations on your purchase of a new Lanzar Opti signal processor. Opti mobile electronics are some of the most advanced car audio products available. These quality audio products are designed and engineered to afford you years of uncompromising musical service. Lanzar has utilized the latest electronic technologies in order to deliver a superb listening experience.

The E-15 Equalizer offers the listener the ability to intensify the listening experience, add realism to their mobile system, overcome his or her vehicle's unique acoustic properties, and tailoring the sound to their preference. The E-15 was designed with the goal of achieving the finest music reproduction.

Although the way it sounds to you is the ultimate decision maker in how you set up your car audio system, we suggest the use of a sound analyzer to give you exact audio measurements of your car's interior so that you can achieve precise equalizer settings. Of course, the E-15 can and should also be adjusted to your preference.

Finally, a tip – once you achieve the optimum settings for your system, don't keep changing them to suit particular program material! Also, we suggest you write the settings down and keep this record in case they ever accidently get changed. This could save hours in having to experiment all over again.

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general features

15 Band Equalizer Controls per Channel in 1/2 and Full Octave Steps

Blue Light Illumination

± 12 dB Boost/Cut at Each Frequency Setting

Front, Rear and Line Outputs

Separate Front, Rear and Line Output Level Controls

Front/Rear Fader Control

Power LED Indicator

EQ Bypass Switch

Gold-Plated Connectors and Terminals

Precautions

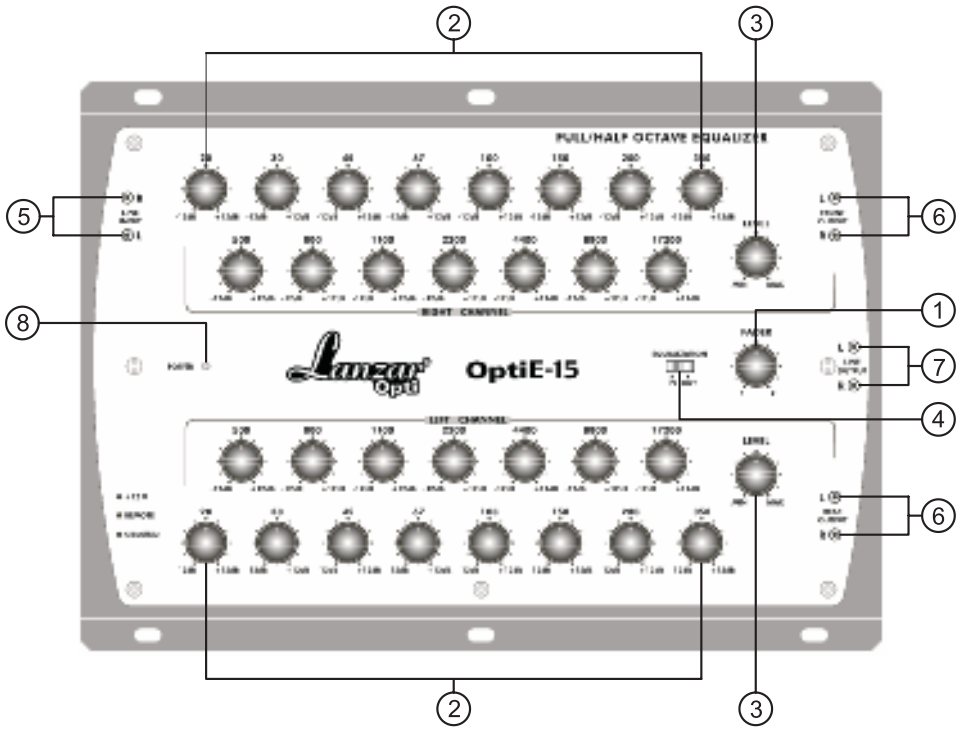
To prevent short circuits, be sure to disconnect the negative battery ground lead before wiring the system up.

When you finish the installation, be sure to make one more check to be sure everything is done correctly.

Reinstate all car parts that were removed.

Reconnect the negative battery ground lead.

features and specifications



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features and specifications

1. Fader Control This rotary controls the balance between the front and rear outputs. This fader takes priority over the fader in your car stereo head unit.

2. Right and Left Channel Equalizer Controls The 15 band equalizer controls divide the frequency control range into 1/2 octave steps at 20Hz, 30Hz, 45Hz, 67Hz, 100Hz, 150Hz, 200Hz, 350Hz, 500Hz,800Hz,and at full octave steps, 1100Hz, 2200Hz, 4400Hz, 8800Hz, 17200Hz. Each rotary control permits the signal at that control's frequency to be either increased (by turning clockwise) or decreased (by turning counter-clockwise) by up to 12 dB. When set to the center detent position, the control provides no increase or decrease at that frequency.

3. Right and Left Output Level Controls There are separate level controls on the E-15 for both the left and right channel outputs. When installing and first setting up the system, set the output level controls to the center detent position for a starting point.
Typically, when the head unit volume is set to approximately the 2 o'clock position your system is at its ideal volume. Set the head unit volume this way, and then adjust the outputs on the E-15 accordingly to achieve the ideal volume without over-driving the inputs of your amplifier, which will create distortion.
The goal in the adjustment is to obtain the best signal-to-noise ratio while obtaining your desired listening volume.

4. EQ In/Out Switch This switch controls whether or not the E-15 is providing equalization ("IN") or simply passing signals through in an unaffected way.

5. Line Inputs The line inputs are connected to your head units RCA outputs. If your head unit has a fader that fades between two sets of RCA outputs make sure that the head unit fader is turned toward the set of RCA connectors that you are using. If your radio has only speaker level outputs you can connect the E-15 to your head unit via a high/low level adapter (for example, a Pyramid NS-60 or equivalent). This separate component allows you to connect your speaker wires from your head unit and the RCA cables from the E-15 while balancing the head unit's output and the equalizer's input.

6. Front & Rear Outputs Connect these outputs to the appropriate inputs of your power amplifier(s). The front outputs connect to the amplifier driving your front speakers, the rear outputs for the rear amplifier.

7. Line Outputs Connect this output to another signal processor type device in your system, such as a crossover. Th1s line output level is unaffected by the fader control.

8. Power Indicator This indicator lights up when the internal power supply is activated and the unit is operational.

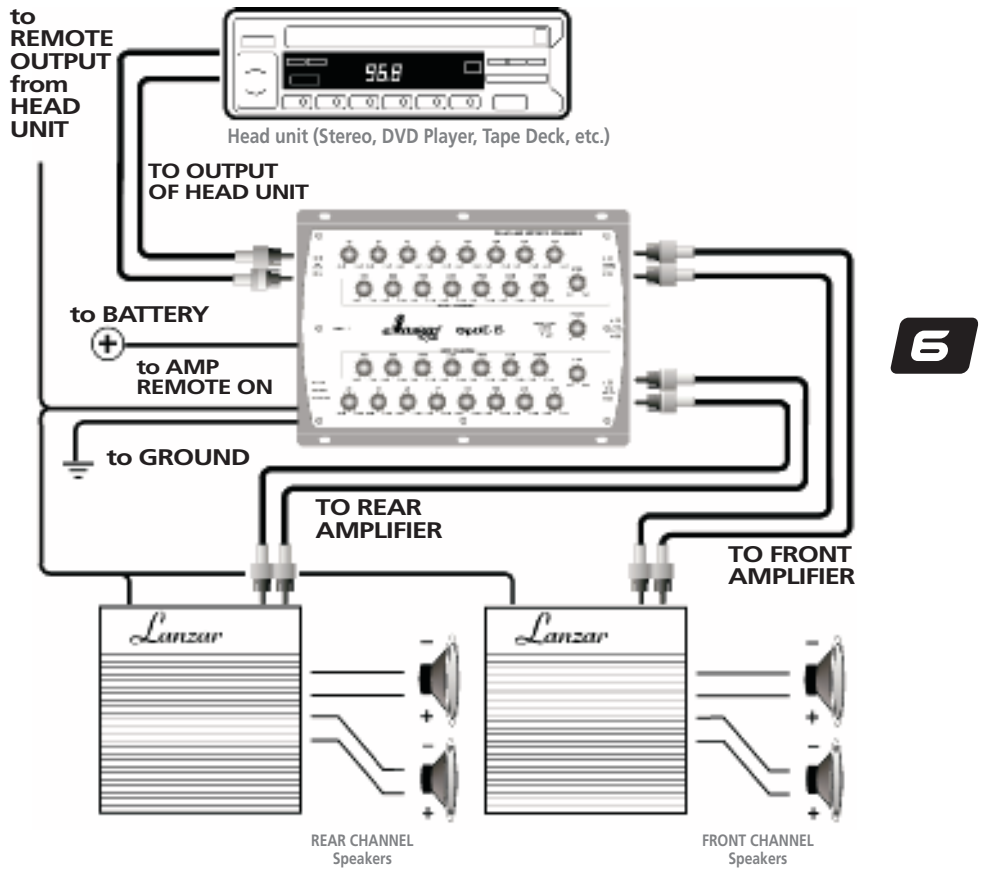
Control Frequencies	
Half Octave	*20Hz • 30Hz • 45Hz • 67Hz*
	100Hz • 150Hz • 200Hz
	350Hz • 500Hz • 800Hz
Full Octave	*1.1KHz • 2.2KHz*
	4.4KHz • 8.8KHz • 17.2KHz
Control Range	*12dB Boost/Cut*
Frequency Response	*10Hz - 30KHz*
Signal-to-Noise Ratio (A-Wtd)	*100dB*
Input Sensitivity	*80mv-2.0Volts*
	for 400mv Output
Maximum Output Voltage	*7.0 Volts*
Channel Separation	*65 dB*
Power Requirement	*11-16 Volts DC*
	negative ground
Dimensions, WxDxH, inches	*11-5/8 x 8-9/32 x 1-1/2*
(millimeters)	*(295 x 210 x 38)*

Lanzar strives to continually improve and refine its products, as well as to design new models. Therefore, the product specifications and illustrations in this manual are subject to change without notice.

System wiring

Standard 4-Channel Output

For standard 4-channel operation, plug both the left and right RCA outputs from your head unit into the E-15 inputs. The output power can be distributed to either the front or rear speakers by using the fader control. With the fader is in the center detent position, you will have balanced output between your front and rear channels. Turning the fader to either the front or rear position results in increased signal strength to that particular side while decreasing signal strength to the other side.

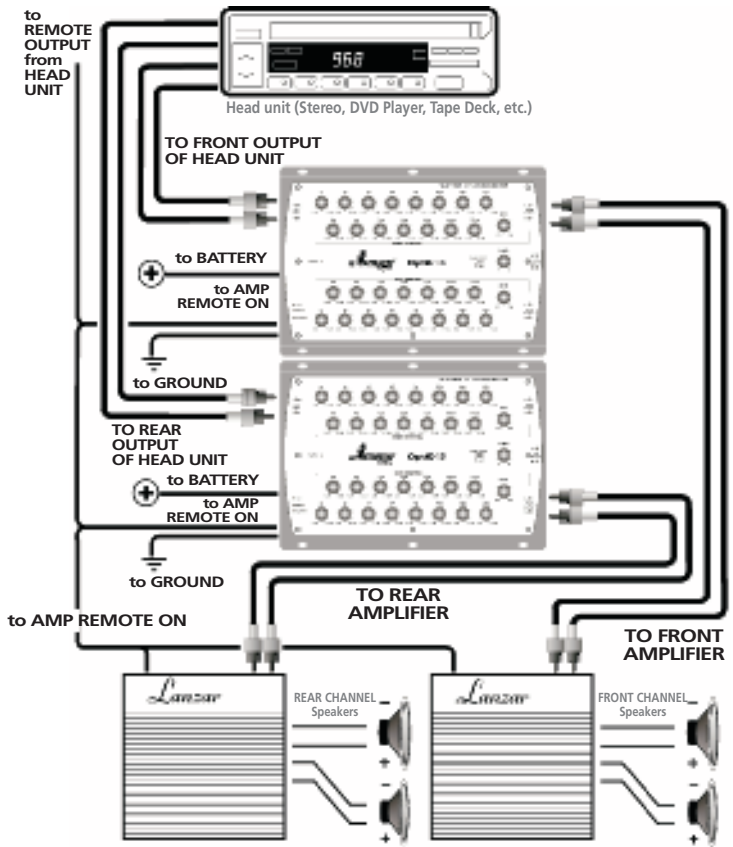


System wiring

Dual E-15 2 + 2 Channel Output Using 4 RCA Inputs

Two Model E-15s are required for this configuration. For more exact control, the E-15s can be configured into separate mono units with the outputs summing the signal into stereo.

If your head unit has two pairs of RCA outputs, plug both of the left outputs into the E-15's left inputs and both of the right outputs into the E-15's right inputs. Place both of the fader controls of the E-15's into the center detent position.

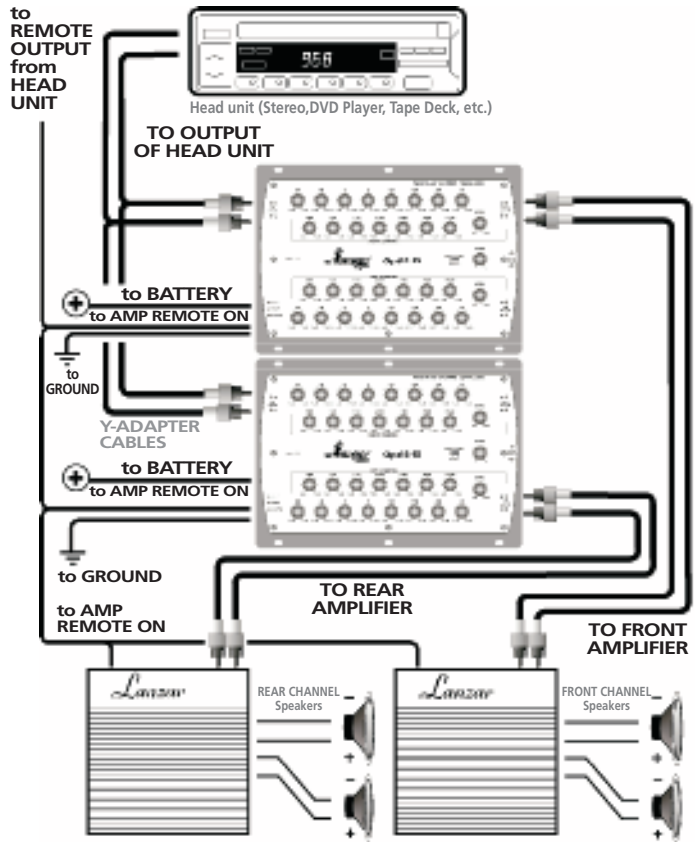


System wiring

Dual E-15 2 + 2 Channel Output Using 2 RCA INPUTS

Two Model E-15s are required for this configuration. If your head unit has only one pair of RCA output jacks, you can achieve the same result by using a pair of Y-adapter cables.

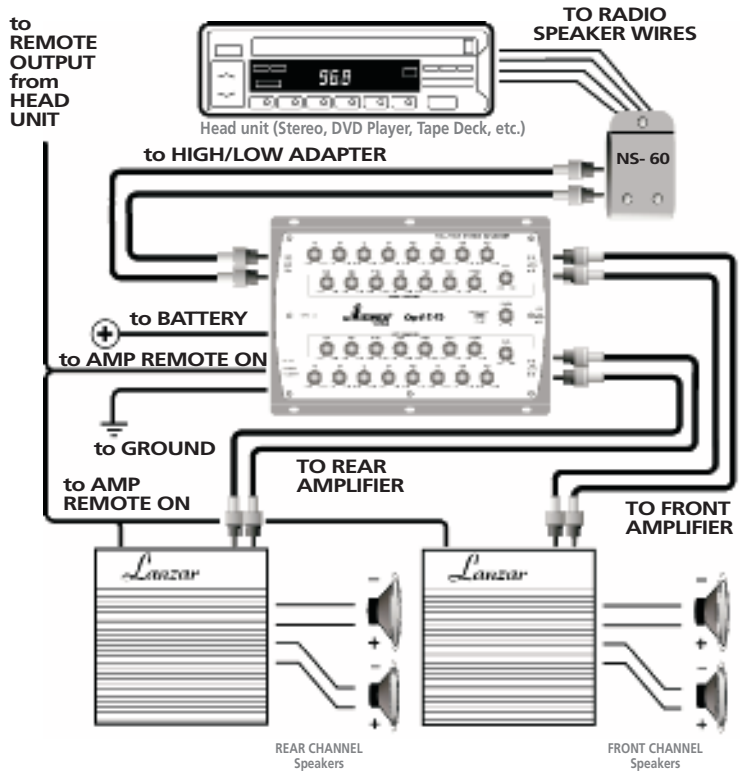
Utilizing two E-15s permits the users to tailor 4 separate 15 band channels in full stereo. When setting up your system we suggest the use of a sound analyzer to aid in obtaining exact measurements of your car's interior. This permits precise equalizer settings.



System wiring

4 Channel Output Using Speaker Level Inputs

If your radio does not have RCA outputs, as is the case with most standard OEM radios, you can use the speaker outputs from those head units to supply audio signal to the E-15. The radio and the E-15 can be connected together by using a high/low level impedance adapter such as the Pyramid® NS-60 or its equivalent. The proper adapter is crucial to provide a match with the input of the E-15 which will help to insure low noise and the finest sound quality from the components.



Mounting and installation

Your new Opti Series Octave Equalizer comes complete with all required mounting hardware.

Please read the Installation Precautions section below before installing your Lanzar Opti signal processor, and then refer to the diagrams provided to connect power, audio input and output connections according to your own system configuration requirements.

Precautions
Mark the location for the mounting screw holes by positioning the Equalizer where you wish to install it and use a scribe (or one of the mounting screws) inserted in each of the mounting holes to mark the mounting surface. If the mounting surface is carpeted, measure the hole centers and mark with a felt tip pen.

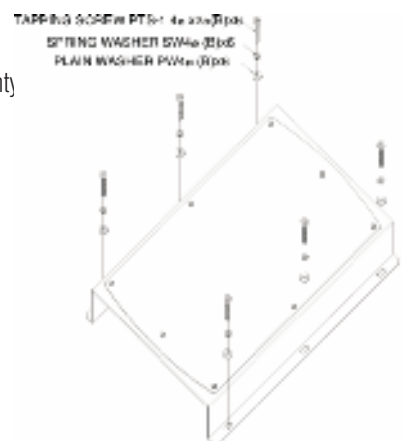
Before you drill or cut any holes, investigate your car's layout very carefully. Take care when you work near the gas tank, fuel lines, hydraulic line and electrical wiring.

Do not operate the signal processor when it is unmounted. Attach all audio system components securely within the automobile to prevent damage, especially in an accident.

Do not mount this signal processor so that the wire connections are unprotected or in a pinched condition, or likely to be damaged by nearby objects. Be sure to select a location inside your vehicle which has adequate ventilation.

Before making or breaking power connections in your system, disconnect the vehicle battery. Confirm that your head unit or other equipment is turned off while connecting the input and output jacks.

If you need to replace the power fuse, only replace it with a fuse identical to that supplied with the system.
Using a fuse of a different type or rating may result in damage to your system which isn't covered by the manufacturer's warranty.



Suggested Tools and Other Parts
- In-line fuse holder
- Felt-tip marking pen
- Electric drill with a Phillips-head screwdriver bit
- Crimping tool or needle-nose pliers
- Wire strippers
- Tape measure and ruler
- Orange wire, 20 gauge or heavier
- Red and Black wire, 18 gauge or heavier
- RCA stereo audio cables (quantity and length determined by application)
- Solder-less connectors or soldering gun with heat shrink tubing

Mounting and installation

Processor Installation

1. Find a suitable location in the vehicle to mount the processor. The E-15 is a trunk mount unit and it should be installed in close proximity to your amplifier system. You should pick a location that offers easy access to the unit for adjustment.

2. Before starting, disconnect the vehicle's negative battery ground to prevent short circuits. Bolt the processor to the mounting surface, making sure there is sufficient air flow around the installation.

3. There are three power terminals on the E-15.

   - A red 18 gauge stranded or heavier and insulated wire should be connected to the terminal marked +12V. Wire an in-line fuse holder on this lead as it is the 12V DC wire for the system. This wire should be attached to the switched side of the vehicle's ignition switch and should have power to it only when the vehicle is running or the switch has been turned to the accessory position.

   - A black stranded wire of at least 18 gauge should be connected to the terminal marked Ground. This is the ground wire for the E-15 and should be attached to the same ground point with the amplifiers in the system. Keeping this ground wire as short as possible improves the electrical circuit and keeps ground-related noise problems to a minimum.

   - An orange stranded wire of a least 20 gauge should be connected to the terminal marked Remote. This wire connects to your head unit's remote out or power antenna lead out. This wire should supply 12 Volts DC any time the radio, CD or cassette are playing. This lead must also be connected to any other components in your system that utilize a remote turn-on lead for powering up.

4. Connect all line inputs and outputs using high-quality RCA-RCA cables.

5. Recheck all connections before powering up.

6. Set all level controls to their least sensitive positions and set all crossover controls, switches, etc. to the desired frequency or position.

7. Once the system is powered up, set the volume control on the head unit to about the 2 o'clock position, and then set all the amplifiers' level controls for maximum output level.

8. Now you are ready to start equalizing your vehicle with the E-15.

Noise check and system adjustment

NOISE CHECK

Check the entire audio system for noise before permanently securing the EQUALIZER mounting

1. Start the engine.
2. Turn the audio system on.
3. Rev the engine and vary the VOLUME of the audio system to determine if there is any unwanted noise.
   If so, turn both the audio system and the engine off. Do not secure the EQUALIZER mounting screws. Refer to the "Trouble Shooting Guide" at this manual.
4. If the audio system does not have any noise, securely tighten the EQUALIZER mounting screw and double check the wiring cables for safe placement.

SYSTEM ADJUSTMENT

Preliminary Adjustments

Pre-setting the system provides a necessary starting point for fine-tuning the entire audio system to maximum performance.

NOTE: DO NOT MOUNT EQUALIZER UNTIL THE FOLLOWING PROCEDURES HAVE BEEN COMPLETED.

1. Preset each amplifier input gain adjustment at the amplifier to half of maximum.
2. Before turning the audio system on, preset-adjust the front, and rear output level controls, as well as the right channel and left channel Equalizer Control points.
3. Slowly turn the volume up and listen carefully for: obvious trouble in sound (distortion, no sound, no hiss, total silence). Turn the system off refer to "Trouble Shooting Guide" at this manual.

Caution

DO NOT ROUTE AUDIO CABLES AND POWER CABLES TOGETHER! THIS CAN CAUSE ENGINE NOISE IN YOUR AUDIO SYSTEM. ALWAYS DISCONNECT THE SYSTEM FROM THE BATTERY BEFORE ATTEMPTING TO MAKE OR ALTER ANY CONNECTIONS. THIS PRODUCT IS DESIRED FOR USE IN ANY 12 VOLTS NEGATIVE GROUND ELECTRICAL SYSTEM ONLY. INSTALLING THIS PRODUCT IN ANY POSITIVE GROUND ELECTRICAL SYSTEM COULD SERIOUSLY DAMAGE THE AUDIO SYSTEM.

TBOUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
1. There is an audible distortion at a low volume level.	• Output levels NOT set correctly. • EQUALIZER frequencies NOT set correctly. • Check for shorts on the speaker leads.
2. A whining sound can be heard through the speakers when the audio system is at low volume with the engine running. The whining noise remains unchanged or seems to disappear when the volume level is increased.	• Check the red power wire. It muse be connected directly to the battery. • Check the system's ground point It muse make good contact with chassis ground (bare metal). • The radio and the EQUALIZER must be grounded at the same reference point.
3. There is a "motor boating" type of sound when the engine is running and the audio system volume is set at a reasonably high level.	• Check the red power wire. It must be connected directly to the battery. • Check the system's ground point. It must make good contact with chassis ground (bare metal).
4. High squeal noise from speakers	• This is almost always caused by a poorly - grounded RCA patch cord.

limited warranty policy

Equalizer

All Lanzar Signal Processors are carefully constructed and thoroughly tested before shipment. Units purchased in the USA are warranted to be free of defects in material and workmanship for three (3) years from the date of purchase. This warranty is limited to the original retail purchaser of the Signal Processor.

Should the unit fail due to a factory defect in material or workmanship, your unit will be repaired or replaced at the sole discretion of Lanzar.

To obtain warranty service, you must first call our Consumer Return Hotline number at (718) 236-6948 to obtain a Return Authorization (RA) number. This RA Number must appear on the outside of your package and on all paperwork relating to your return.

When returning the unit to us for warranty service, it must be carefully packed and shipped prepaid to:

R.A. # _____
Lanzar Service Center
1600 63rd Street
Brooklyn, NY 11204

www.lanzar.com

You must also include the following items with your return:

- A copy of your sales receipt or other proof of purchase
- A brief letter indicating the problem you are experiencing with the product
- Include in your letter your return address, daytime phone number and RA Number
- Also include a check or money order for $20.00 for return shipping, handling and insurance, or provide your VISA/MasterCard number with expiration date.

Our obligation under this warranty is limited to the repair or replacement of the defective unit when it is returned to us prepaid. This warranty will be considered void if the unit was tampered with, improperly serviced, or subject to misuse, neglect or accidental damage.

All implied warranties of merchantability and fitness for a particular purpose are limited in duration to the length of the warranty. Lanzar expressly disclaims any liability for incidental or consequential damages caused by product defects. This warranty does not cover any expense incurred in the removal and/or reinstallation of the Signal Processor. Lanzar's total liability will not exceed the purchase price of the Signal Processor.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.